Abstract

A multi-wavelength photonic oscillator has a plurality of lasers each emitting light at a different frequency. An optical wavelength multiplexer combines the light emitted by the plurality of lasers at an output thereof as a set of optical wavelengths. An optical modulator is arranged in a feedback loop and coupled to receive light at the output of the optical wavelength multiplexer, the feedback loop further including an optical tap for coupling at least a subset of said set of optical wavelengths to at least one optical output of the multi-wavelength photonic modulator; at least one optical channel having an associated photodetector arranged to receive light from the optical tap via the at least one optical channel; and an electronic loop portion coupled to receive output from the at least one associated photodetector and to provide an input for the optical modulator.